



Day 1: Monday, October 5, 2020

09:00 - 09:15 **Opening Ceremony**

Opening Ceremony & Welcome Address By Tsuyoshi Takada
Chair of APSSRA2020

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| Keynote 1 | Learning about a Site Using Sparse Site-Specific Data - Recent Advancements |
| | Jianye Ching* and Kok-Kwang Phoon, *National Taiwan University, Taiwan |
| Date/Time | Monday, October 5, 2020 / 9:15 - 10:00 |
| Venue | Room 1 |
| Chair(s) | S. Nishimura (Okayama University) |

10:00 - 10:30 **Coffee Break**

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| Session | MM1: OS16 Best Utilization of Earthquake Hazard Information for Advanced Seismic Risk Estimation |
| Date/Time | Monday, October 5, 2020 / 10:30 - 12:00 |
| Venue | Room 1 |
| Chair(s) | Y. Mori (Nagoya University), N. Luco (USGS), M. Ohbuchi (Takenaka Corporation) |

MM1-1
10:30 - 10:45 Validation of Variation in Synthetic Ground Motions Caused by Variability of Seismic-Source Characteristics
M. Aoki*, S. Igarashi, Y. Uchiyama, S. Sakamoto — *Taisei Corporation, Japan

MM1-2
10:45 - 11:00 Estimation of Maximum Displacement Response for Inelastic Oscillator Based on Natural Period Dependent Spectrum Intensity
T. Furukawa* and Y. Mori — *KAJIMA Technical Research Institute, Japan

MM1-3
11:00 - 11:15 Proposing a Method of Seismic Load for Aftershocks of a Huge Earthquake
M. Ohbuchi* and M. Yoshizawa — *Takenaka Corporation, Japan

MM1-4
11:15 - 11:30 Practical Estimation Method for Acceleration Fourier Amplitude Spectrum at an Arbitrary Point by Using Advanced Kriging Method
Y. Mizutani*, M. Sugai and Y. Mori — *Obayashi Corporation, Japan

MM1-5
11:30 - 11:45 Insensitivity of Risk-Targeted Seismic Design Loads for Building Codes to the Requisite Fragility Curve Shape
N. Luco* — *U.S. Geological Survey, USA

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| Session | MM2: GS1 Reliability Analysis of Engineering Structures |
| Date/Time | Monday, October 5, 2020 / 10:30 - 12:00 |
| Venue | Room 2 |
| Chair(s) | F. Ozaki (Nagoya University), P. Jiang (National University of Defense Technology) |

MM2-1
10:30 - 10:45 Space Product Reliability Evaluation Based on Data from Two-Stage Development
Bo Wang, Ping Jiang*, Yunyan Xing and Tianyu Liu — *National University of Defense Technology, China

- MM2-2 Estimation of Fracture Probability of a Steel Member Subjected to Localized Fire and the Code Calibration for the Current Fire Resistant Design
10:45 - 11:00 M. Ono* and F. Ozaki — *Nagoya University, Japan
- MM2-3 Estimation of Failure Probabilities for Steel Members Subjected to Fully Developed Fire and the Code-Calibration for the Existing Fire Resistance Designs
11:00 - 11:15 X. Zhao* and F. Ozaki — *Nagoya University, Japan
- MM2-4 Probabilistic Runout Distance Analysis Using Material Point Methods
11:15 - 11:30 M. Lu*, M. Zhou and J. Zhang — *Tongji University, China
- MM2-5 Characterization of Model Uncertainty for Necessary Face Pressures of Tunneling in Frictional Soils
11:30 - 11:45 Q. J. Pan, C. Tang, L. H. Zhao, and K. K. Poon — *National University of Singapore, Singapore

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| Session | MM3: OS7 Probabilistic Site Characterization: Planning, Data Analytics and Value of Information |
| Date/Time | Monday, October 5, 2020 / 10:30 - 12:00 |
| Venue | Room 3 |
| Chair(s) | Y. Wang (City University of Hong Kong), S. Nishimura (Okayama University) |

- MM3-1 Planning of Site Investigation for Subsurface Shallow Gas Pressure: A Smart Sampling Strategy
10:30 - 10:45 Zheng Guan*, Zijun Cao, Yi Hong and Yu Wang — *City University of Hong Kong, Hong Kong
- MM3-2 Bayesian Inference on the Estimation of Cross-Variogram
10:45 - 11:00 J. B. Xu*, L. L. Zhang and Y. Wang — *Shanghai Jiao Tong University, China
- MM3-3 The Effect of Spatial Variability on the 3D Slope Stability Evaluation
11:00 - 11:15 Lihang Hu* and Kiyonobu Kasama — *Tokyo Institute of Technology, Japan,

12:00 - 13:00 Lunch

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| Keynote 2 | System Resilience for Sustainable Development and Disaster Risk Reduction |
| | T. Itoi*, *The University of Tokyo |
| Date/Time | Monday, October 5, 2020 / 13:00 - 13:45 |
| Venue | Room 1 |
| Chair(s) | I. Yoshida (Tokyo City University) |

13:45 - 14:00 Coffee Break

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| Session | MA1: OS5 Reliability and Resilience of Critical Infrastructure Systems and Networks & OS13 Structural Health Monitoring and Model Identification in Uncertain Environments |
| Date/Time | Monday, October 5, 2020 / 15:00 - 15:30 |
| Venue | Room 1 |
| Chair(s) | M. Beer (Leibniz University Hannover), M. Broggi (Leibniz University Hannover) |

- MA1-1 Regressions with Dummy Variable to Tackle with Environmental and Operational Influences on Long-Term Bridge Health Monitoring
15:00 - 15:15 WJ. Jiang*, C.W. Kim, Y. Goi and F.L. Zhang — *Kyoto University, Japan



MA1-2 Reliability Based Optimization of Inspection and Maintenance Schedules for Offshore Jacket Structures
15:15 - 15:30 Subject to Marine Corrosion
Jasper Behrendorf*, Md Samdani Azad, Matteo Broggi, Wonsiri Punurai and Michael Beer — **Leibniz University Hannover, Germany*

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| Session | MA2: OS11 Methods of Moment for Structural Reliability |
| Date/Time | Monday, October 5, 2020 / 14:00 - 15:30 |
| Venue | Room 2 |
| Chair(s) | Y.-G. Zhao (Kanagawa University), Z.-H. Lu (Beijing University of Technology) |

MA2-1 On the Reliability Assessment Approaches of a Short Column Subjected to Vertical Loading
14:00 - 14:15 Y.X. Xia*, M. Hu, D.Q. Li and Y. Liu — **Wuhan University, China*

MA2-2 Evaluation of the Structural Reliability under Imperfect Knowledge of Distribution Parameters
14:15 - 14:30 P.P. Li*, Y.G. Zhao and Z.H. Lu — **Kanagawa University, Japan*

MA2-3 Structural Reliability Analysis without Exclusion of the Distribution Parameter Uncertainties
14:30 - 14:45 Y.G. Zhao*, P.P. Li and Z.H. Lu — **Kanagawa University, Japan*

MA2-4 Application of Normal Inverse Gaussian Distribution in Reliability Analysis
14:45 - 15:00 W. Fan, X. Sheng*, Q. He, C. Liu — **Chongqing University, China*

MA2-5 MCMC Enhanced Form Estimates and Subset Simulation
15:00 - 15:15 K. Breitung* — **Technical University of Munich, Germany*

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| Session | MA3: OS2 Machine Learning for Civil Engineering |
| Date/Time | Monday, October 5, 2020 / 14:00 - 15:30 |
| Venue | Room 3 |
| Chair(s) | T. Shuku (Okayama University), W. Zhang (Chongqing University) |

MA3-1 Investigation on Neural Network Model for Estimating Soil Strength by Bucket Excavation
14:00 - 14:15 T. Satomi*, Y. Takahashi and H. Takahashi — **Tohoku University, Japan*

MA3-2 Identification of Consolidation Parameters of Ma12 Layer in Osaka Bay through Data Assimilation
14:15 - 14:30 K. Oda* — **Osaka Sangyo University, Japan*

MA3-3 Prediction of Dam Leakage Using Machine Learning
14:30 - 14:45 K. Inoue* and M. Suzuki — **Kobe University, Japan*

MA3-4 Automatic Selection of Methane Hydrate Soil Samples Based on Statistical Data Analysis
14:45 - 15:00 T. Shuku*, T. Mekata and K. Kageie — **Okayama University, Japan*

15:30 - 15:45 Coffee Break

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| Session | ME1: OS4 Current Trend on Statistical Methods for Engineering Analyses |
| Date/Time | Monday, October 5, 2020 / 15:45 - 17:15 |
| Venue | Room 1 |
| Chair(s) | M. Beer (Leibniz University Hannover), M. Faes (Leibniz University Hannover) |

ME1-1 First Excursion Probability Bounds under Imprecise Stochastic Loading
15:45 - 16:00 Matthias G. R. Faes*, Marcos A. Valdebenito, David Moens and M. Beer — **KU Leuven, Belgium*



- ME1-2 Engineering Analysis with Imprecise Probabilities: A State-of-the-Art Review on P-Boxes
16:00 - 16:15 M. G. R. Faes, M. Daub* and M. Beer — **Technical University of Munich, Germany*
- ME1-3 Multifidelity Reliability Estimation
16:15 - 16:30 C. Proppe* — **Karlsruhe Institute of Technology, Germany*
- ME1-4 Real-Time Reliability Analysis of Tunneling-Induced Building Damage
16:30 - 16:45 B.T. Cao*, M. Obel, S. Freitag, P. Mark and G. Meschke — **Ruhr University Bochum, Germany*

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| Session | ME2: OS14 System Identification, Structural Health Monitoring and Reliability for Civil Structures |
| Venue | Room 2 |
| Date/Time | Monday, October 5, 2020 / 15:45 - 17:15 |
| Chair(s) | S.-K. Au (Nanyang Technological University), C.-W. Kim (Kyoto University) |

- ME2-1 Bayesian Data Driven Model for Uncertain Parameters in Structural Health Monitoring
15:45 - 16:00 Y.C. Zhu* and S.K. Au — **The University of Sheffield, UK*
- ME2-2 Implementation of Adaptive Kriging Surrogate Model for Seismic Reliability Analysis of Existing Bridges
16:00 - 16:15 M. Kitahara*, M. Broggi and M. Beer — **Leibniz Universität Hannover, Germany*
- ME2-3 Changes in Modal Parameters and Performance of a Prestressed Concrete Bridge under Step-by-Step Loading
16:15 - 16:30 C.W. Kim*, Y. Kondo, G. Hayashi and Y. Oshima — **Kyoto University, Japan*

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| Session | ME3: OS2 Machine Learning for Civil Engineering |
| Date/Time | Monday, October 5, 2020 / 15:45 - 17:15 |
| Venue | Room 3 |
| Chair(s) | T. Shuku (Okayama University), W. Zhang (Chongqing University) |

- ME3-1 A Pattern Recognition Approach to Evaluate the Uncertain Soil Stratum in front of the Tunnel Face
15:45 - 16:00 Elham Mahmoudi, Raoul Hoelter and Chenyang Zhao* — **Sun Yat-Sen University, China*
- ME3-2 Model Selection for Soil Stratification by Sparse Modelling
16:00 - 16:15 I. Yoshida* and T. Shuku — **Tokyo City University, Japan*
- ME3-3 Bayesian Network Characterization of Shear Wave Velocity for Sands
16:15 - 16:30 Man Kong Lo*, Xiao Wei, Siau Chen Chian and Taeseo Ku — **National University of Singapore, Singapore*
- ME3-4 Data Assimilation of Seepage Analysis Model including Boundary Condition Based on Field Measurement Data
16:30 - 16:45 S. Ito*, K. Oda and K. Koizumi — **Kagoshima University, Japan*
- ME3-5 A Sparse Polynomial Surrogate Model for Geotechnical Reliability Design
16:45 - 17:00 T. Shuku*, S. Nishimura and T. Shibata — **Okayama University, Japan*

End of Day 1



Day 2: Tuesday, October 6, 2020

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| Keynote 3 | Reliability-Based Design for Terrorist Threats to Infrastructure |
| | M.G. Stewart*, *The University of Newcastle, Australia |
| Date/Time | Tuesday, October 6, 2020 / 9:00 - 9:45 |
| Venue | Room 1 |
| Chair(s) | T. Itoi (The University of Tokyo) |

9:45 - 10:30 Coffee Break

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| Session | TM1: OS3 Recent Advances on Strategies for Uncertainty Quantification of Involved Problems in Stochastic Structural Dynamics |
| Date/Time | Tuesday, October 6, 2020 / 10:30 - 12:00 |
| Venue | Room 1 |
| Chair(s) | H. Jensen (Santa Maria University), J. Chen (Tongji University) |

TM1-1
10:30 - 10:45 Reliability Analysis of Structures Equipped with Friction-Based Isolators under Stochastic Ground Motion
H. Jensen*, F. Mayorga and C. Figueroa — *Federico Santa Maria Technical University, Chile

TM1-2
10:45 - 11:00 Directional Importance Sampling for Reliability Assessment of Linear Structures Subject to Dynamic Gaussian Loading
M.A. Valdebenito*, M.A. Misraji, H.A. Jensen and C.F. Mayorga — *Federico Santa Maria Technical University, Chile

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| Session | TM2: GS2 Risk Assessment and Risk Management |
| Date/Time | Tuesday, October 6, 2020 / 10:30 - 12:00 |
| Venue | Room 2 |
| Chair(s) | H. Kikitsu (National Institute for Land and Infrastructure Management), T. Itoi (The University of Tokyo) |

TM2-1
10:30 - 10:45 Evaluation of Seismic Shutdown Trigger Level for Petroleum Refinery
T. Shizuma*, H. Takada, T. Matsumoto and T. Nakamura — *Shinozuka Research Institute, Japan

TM2-2
10:45 - 11:00 Evaluation of Electricity Supply Resilience during an Earthquake for an Individual User
T. Matsumoto*, T. Uetake, Y. Shikama and T. Nakamura — *Shinozuka Research Institute, Japan

TM2-3
11:00 - 11:15 Seismic Fragility Analysis of Human Injury Using Seismic Response Analysis Model of Human Bodies
Y. Matsumoto*, T. Hida, T. Takada and T. Itoi — *The University of Tokyo, Japan

TM2-5
11:15 - 11:30 Effects of Parameters for Agent-Based Simulation on Tsunami Evacuation Time in Urban Area
A. Minamihara*, T. Hida, T. Takada, T. Itoi — *The University of Tokyo, Japan

TM2-6
11:30 - 11:45 Bottom-Up Approach to Building Functionality
D.A. Reed*, S. Wang and A. Kim — *University of Washington, USA



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| Session | TM3: OS2 Machine Learning for Civil Engineering |
| Date/Time | Tuesday, October 6, 2020 / 10:30 - 12:00 |
| Venue | Room 3 |
| Chair(s) | S. Wu (The Institute of Statistical Mathematics), M. Kohiyama (Keio University) |

- TM3-1
10:30 - 10:45
Wireless Seismic Response Control of an Instrument with Casters Based on Reinforced Learning Considering Stochastic Models of Computer Vision
K. Wakabayashi*, M. Kohiyama, R. Eguchi and M. Takahashi — *Keio University, Japan
- TM3-2
10:45 - 11:00
Rapid Prediction of Wildfire Spread by Ensemble Kalman Filter Employing Polyline Simplification Algorithm
Seungmin Yoo* and Junho Song — *Seoul National University, Korea
- TM3-3
11:00 - 11:15
Corrosion Evaluation Method for Weathering Steel Bridges Using Convolution Neural Network Based on Camera Images
Takeshi Kitahara and Kohei Takada* — *Kanto Gakuin University, Japan

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| Session | TM4: OS8 Probabilistic Methods and Reliability-based Design in Geotechnical Engineering |
| Date/Time | Tuesday, October 6, 2020 / 10:30 - 12:00 |
| Venue | Room 4 |
| Chair(s) | L.-J. Li (Harbin Institute of Technology), Y. Otake (Tohoku University) |

- TM4-1
10:30 - 10:45
Optimal Sensor Placement for Dynamic Response Prediction in Real Time of River Levee Embankment on Liquefiable Sand Layer
Taiga Shoji*, Yu Otake, Kyohei Shigeno, Yosuke Higo and Shogo Muramatsu — *Niigata University, Japan
- TM4-2
10:45 - 11:00
Consistent Geotechnical Reliability Analysis with a Simple Deterministic Model
Te Xiao*, Li-Min Zhang and Dian-Qing Li — *The Hong Kong University of Science and Technology, Hong Kong
- TM4-3
11:00 - 11:15
Efficient Reliability-Based Design Updating Method for Piles in Spatially Variable Soils
Yi-Jian Yang*, Guo-Hui Gao, Zi-Jun Cao and Dian-Qing Li — *Wuhan University, China

12:00 - 13:00 Lunch

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| Session | Suzanne Lacasse Lecture |
| | Risk-informed Landslide Hazard Mitigation in Mountain Highway Design |
| | Li-Min Zhang*, Rui-Lin Fan and Te Xiao, *The Hong Kong University of Science and Technology, Hong Kong |
| Date/Time | Tuesday, October 6, 2020 / 13:00 - 13:45 |
| Venue | Room 1 |
| Chair(s) | K.-K. Phoon (National University of Singapore) |

13:45 - 14:00 Coffee Break



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| Session | TA1: OS3 Recent Advances on Strategies for Uncertainty Quantification of Involved Problems in Stochastic Structural Dynamics |
| Date/Time | Tuesday, October 6, 2020 / 14:00 - 15:30 |
| Venue | Room 1 |
| Chair(s) | J. Chen (Tongji University), I. Papaioannou (Technical University of Munich) |

- TA1-1 14:00 - 14:15 Bayesian Compressive Sensing Based Evolutionary Power Spectrum Estimation for Incomplete Process Records
S. Kruse*, E. Patelli, and M. Beer — **University of Liverpool, UK*
- TA1-2 14:15 - 14:30 Reliability Estimation of Rare Events for Stochastic Dynamic Systems Excited by Stationary Stochastic Processes
M. Bittner*, M. Broggi, J.B. Chen and M. Beer — **Leibniz University of Hannover, Germany*
- TA1-3 14:30 - 14:45 Revisiting the Advanced Line Sampling Method for Structural Reliability Assessment
Iason Papaioannou* and Daniel Straub — **Technical University of Munich, Germany*
- TA1-4 14:45 - 15:00 Series System Reliability Estimation of Randomly Excited Uncertain Linear Structures by Cross Entropy-Based Importance Sampling
O. Kanjilal*, I. Papaioannou and D. Straub — **Technical University of Munich, Germany*

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| Session | TA2: OS6 Risk Analysis and Management of Geotechnical Problem |
| Date/Time | Tuesday, October 6, 2020 / 14:00 - 15:30 |
| Venue | Room 2 |
| Chair(s) | L. Zhang (Shanghai Jiaotong University), S. Nishimura (Okayama University) |

- TA2-1 14:00 - 14:15 Optimal Planning of Rockfall Protection Structures Based on Hazard Assessment for Road
Y. Tsuda*, I. Yoshida, H. Kanno and S. Moriguchi — **Tokyo City University, Japan*
- TA2-2 14:15 - 14:30 Time-Dependent System Reliability Analysis of Slopes under Rainfall Infiltration Using HLRF Algorithm
Wenwang Liao* and Jian Ji — **Hohai University, China*
- TA2-3 14:30 - 14:45 Conditional Slope Stability Analysis Considering Spatial Variability of Soils and Site Investigation Information
J.Y. Ouyang*, M. Hu, D.Q. Li and Y. Liu — **Wuhan University, China*
- TA2-4 14:45 - 15:00 Effects of Truncation on Transport Parameters Estimated from Spatial and Temporal Moments in Homogeneous Porous Media
T. Kurasawa*, M. Suzuki and K. Inoue — **Kobe University, Japan*

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| Session | TA3: OS2 Machine Learning for Civil Engineering |
| Date/Time | Tuesday, October 6, 2020 / 14:00 - 15:30 |
| Venue | Room 3 |
| Chair(s) | S. Wu (The Institute of Statistical Mathematics), M. Kohiyama (Keio University) |

- TA3-1 14:00 - 14:15 Efficient Data-Driven Prediction Approach for Track Break Zones Based on Extreme Learning Machine
Shui-Hua Jiang*, Hao-Long Zhang, Jinsong Huang and Jinhui Li — **Nanchang University, China*
- TA3-2 14:15 - 14:30 Bayesian Learning of Vector Autoregressive Models for System Identification
Jia-Hua Yang* and Heung-Fai Lam — **Tongji University, China*

- TA3-3 Unsupervised Deep Neural Network for Near-Real-Time Damage Assessment of Structures Subject to Earthquake Excitations
14:30 - 14:45 M. Kim* and J. Song — *Seoul National University, Korea
- TA3-4 Interpretation of Deep Neural Network for Damage Pattern Classification Using Phase Plane
14:45 - 15:00 T. Kumagai*, M. Kohiyama and T. Yamashita — *Keio University, Japan
- TA3-5 Multivariate Adaptive Regression Splines for Prediction of Wind Pressure Coefficients on Low-Rise Building Surfaces
15:00 - 15:15 Zhiyuan Fang*, Zhisong Wang and Zhengliang Li — *Chongqing University, China

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| Session | TA4: OS8 Probabilistic Methods and Reliability-Based Design in Geotechnical Engineering |
| Date/Time | Tuesday, October 6, 2020 / 14:00 - 15:30 |
| Venue | Room 4 |
| Chair(s) | Z.-J. Cao (Wuhan University), S. Moriguchi (Tohoku University) |

- TA4-1 Novel Techniques for Efficient Slope Reliability Analyses Combining Active-Learning SVM Classifier and Judgement-Based Strength Reduction Method
14:00 - 14:15 P. Zeng*, T. Zhang, R. Jimenez and T. Li — *Chengdu University of Technology, China
- TA4-2 Contribution of DEM Parameters in Granular Flow Simulations
14:15 - 14:30 S. Moriguchi*, H. Okuyama, K. Terada and Y. Otake — *Tohoku University, Japan
- TA4-3 Reliability Assessment for Residual Bearing Capacity of a Railway Bridge Foundation after Scouring
14:30 - 14:45 H. Nishioka*, T. Sanagawa and Y. Otake — *Chuo University, Japan

15:30 - 15:45 Coffee Break

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| Keynote 4 | Time-Variant Structural Reliability Analysis - A Computational Perspective |
| | Christian Bucher*, *Technische Universität Wien, Austria |
| Date/Time | Tuesday, October 6, 2020 / 15:45 - 16:30 |
| Venue | Room 1 |
| Chair(s) | T. Takada (JAEA/The University of Tokyo) |

16:30 - 17:00 Coffee Break

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|--------------------------|--|
| Special Session 2 | Current Status of Codes and Standards for Performance-Based Design of Structures |
| Date/Time | Tuesday, October 6, 2020 / 17:00 - 18:30 |
| Venue | Room 1 |
| Chair(s) | T. Takada (JAEA/The University of Tokyo), Y. Mori (Nagoya University), T. Takahashi (Chiba University) |

Comparison of Japanese and Other Codes on Serviceability Limit States
T. Takahashi*, K. Hirata, and K. Kwok, — *Chiba University, Japan

Comparison of Serviceability Specifications Presented in Australian Standards, Eurocodes and American Design Codes
K. Kwok* and J. Bezzak, — *The University of Sydney



Publication of JIS A3305

T. Takada*, — **The University of Tokyo/Japan Atomic Energy Agency*

Reliability of Geotechnical Structures in ISO2394

K.-K. Phoon*, — **National University of Singapore*

Current Status on Civil Engineering Design Codes in Japan from the viewpoint of Performance-based Design

M. Fujita*, — **Shimizu Corporation*

Session Summary

Y. Mori*, — **Nagoya University*

End of Day 2



Day 3: Wednesday, October 7, 2020

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|-------------------|---|
| Special Session 1 | Memorial Session to Honor the Late Professor Masanobu Shinozuka |
| Speakers | H. Furuta (<i>Kansai University</i>), C. B. Yun (<i>Zhejiang University</i>), B. Ellingwood (<i>Colorado State University</i>), F. Yamazaki (<i>National Research Institute for Earth Science and Disaster Resilience</i>), G. Deodatis (<i>Columbia University</i>), T. Takada (<i>JAEA/The University of Tokyo</i>) |
| Date/Time | Wednesday, October 7, 2020 / 9:00 - 10:20 |
| Venue | Room 1 |
| Chair(s) | T. Takada (<i>JAEA/The University of Tokyo</i>) |

10:20 - 10:30 Coffee Break

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|-----------|---|
| Session | WM1: OS15 Reliability-Based Life-Cycle Design and Maintenance of Infrastructures |
| Date/Time | Wednesday, October 7, 2020 / 10:30 - 12:30 |
| Venue | Room 1 |
| Chair(s) | K.-W. Liao (<i>National Taiwan University</i>), I.-T. Yang (<i>National Taiwan University of Science and Technology</i>), M. Akiyama (<i>Waseda University</i>) |

- WM1-1
10:30 - 10:45 A Full-Probabilistic Safety Assessment Method for Existing RC Bridges
T. Kouta* and C. Bucher — **Shimizu Corporation, Japan*
- WM1-2
10:45 - 11:00 Life-Cycle Bridge Network Management under Uncertainty
Sunyong Kim*, Baixue Ge and Dan M. Frangopol — **Wonkwang University, Korea*
- WM1-3
11:00 - 11:15 Reliability-Based Design of a Water-Immersed Bridge Considering Uncertainties in Scours, Earthquakes and Climate Change Effects
Kuo-Wei Liao* and Hai-Ya Wang — **National Taiwan University, Taiwan*
- WM1-4
11:15 - 11:30 Reliability-Based Design Optimization Using Symbiotic Organisms Search and Subset Simulation
I.T. Yang,* and H. Prayogo — **National Taiwan University of Science and Technology, Taiwan*
- WM1-5
11:30 - 11:45 Risk-Based Design Load on Membrane Structures with Predetermined Service Life
Shono Suzuki* and Yasuhiro Mori — **Taiyo Kogyo Corporation, Japan*
- WM1-6
11:45 - 12:00 Study on the Cumulative Damage Effect Induced by Aftershocks for RC Structures
C.K. Chiu* — **National Taiwan University of Science and Technology, Taiwan*
- WM1-7
12:00 - 12:15 Seismic Probabilistic Risk Assessment of Nuclear Power Plants Using Response-Based Fragility Curves
Yin-Nan Huang* — **National Taiwan University, Taiwan*

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| Session | WM2: OS6 Risk Analysis and Management of Geotechnical Problem |
| Date/Time | Wednesday, October 7, 2020 / 10:30 - 12:30 |
| Venue | Room 2 |
| Chair(s) | L. Zhang (<i>Shanghai Jiaotong University</i>), S. Nishimura (<i>Okayama University</i>) |

- WM2-1
10:30 - 10:45 DTM and Rainfall-Based Landslide Susceptibility Analysis Using Machine Learning: A Case Study of Lantau Island, Hong Kong
H.J. Wang*, L.M. Zhang and T. Xiao — **The Hong Kong University of Science and Technology, Hong Kong*



- WM2-2 Strength Characteristics of Calcareous Sands with Different Particle Size Based on Triaxial Tests
10:45 - 11:00 Y. Gao, W. L. Li*, H. Y. Zhang and H. Chen — *Sun Yat-Sen University, China
- WM2-3 Discussion on Improvement of the Risk Based Decision Making Method Based on Basin Risk
11:00 - 11:15 Visualization
Hiromu Yazawa*, Yu Otake, and Hiroto Koide — *Niigata University, Japan
- WM2-4 Risk Evaluation for Earth-Fill Dams due to Heavy Rains - Probability of Failure due to Heavy Rains -
11:15 - 11:30 K. Kuribayashi*, N. Tanaya, S. Kuroda, T. Kato, T. Tateishi, R. Hirata, T. Shibata and S. Nishimura — *Eight-
Japan Engineering Consultants Inc., Japan
- WM2-5 Risk Evaluation for Earth-Fill Dams due to Heavy Rains - Efficient Risk Evaluation by Response Surface
11:30 - 11:45 Method -
T. Tateishi*, R. Hirata, T. Shibata, S. Nishimura, K. Kuribayashi, N. Tanaya, S. Kuroda and T. Kato —
*Okayama University, Japan

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| Session | WM3: OS1 Recent Trends of AI/IoT Technology for Data-Driven Approaches in Natural Disaster Preventions & OS10 Real World Uncertainty Quantification and Data-Driven Decision Making |
| Date/Time | Wednesday, October 7, 2020 / 10:30 - 12:30 |
| Venue | Room 3 |
| Chair(s) | J. Dang (Saitama University), T. Hida (The University of Tokyo), P. Wei (Northwestern Polytechnical University) |

- WM3-1 IoT Based Structural Seismic Monitoring: System Development and Experimental Verification
10:30 - 10:45 R. Zuo*, J. Dang, C.S. Goit, K. Shimizu, A. Tsunoda and Y. Suzuki — *Kawakin Core-Tech Co., Ltd., Japan
- WM3-2 Effect of Nonlinear Characteristics on Applicability of Extended Correlation Anomaly Detection to
10:45 - 11:00 Structure-Portfolio Monitoring
T. Yaoyama*, T. Hida and T. Takada — *The University of Tokyo, Japan
- WM3-3 Image-Based Building Damage Evaluation Based on Semantic Segmentation and Convolutional Neural
11:00 - 11:15 Network
M. Yamaguchi, T. Hida*, T. Itoi and T. Takada — *The University of Tokyo, Japan
- WM3-4 Comparative Study of Data-Driven Machine Learning Methods for Spatially Interpolating Non-
11:15 - 11:30 Stationary and Non-Gaussian Geotechnical Properties
Chao Shi* and Yu Wang — *City University of Hong Kong, Hong Kong
- WM3-5 Cable Breaking Probability Analysis of Cable-Stayed Bridge Subjected to the Environmental Corrosion
11:30 - 11:45 and Fatigue Load
Min He, Zhaohui Chen* and Hong Gu — *Chongqing University, China
- 12:30 - 13:00 **Closing Ceremony**
Closing Address By Tsuyoshi Takada
Chair of APSSRA2020
Award Ceremony for Student Paper Award
Invitation to 8th Asian-Pacific Symposium on Structural Reliability and its Applications